



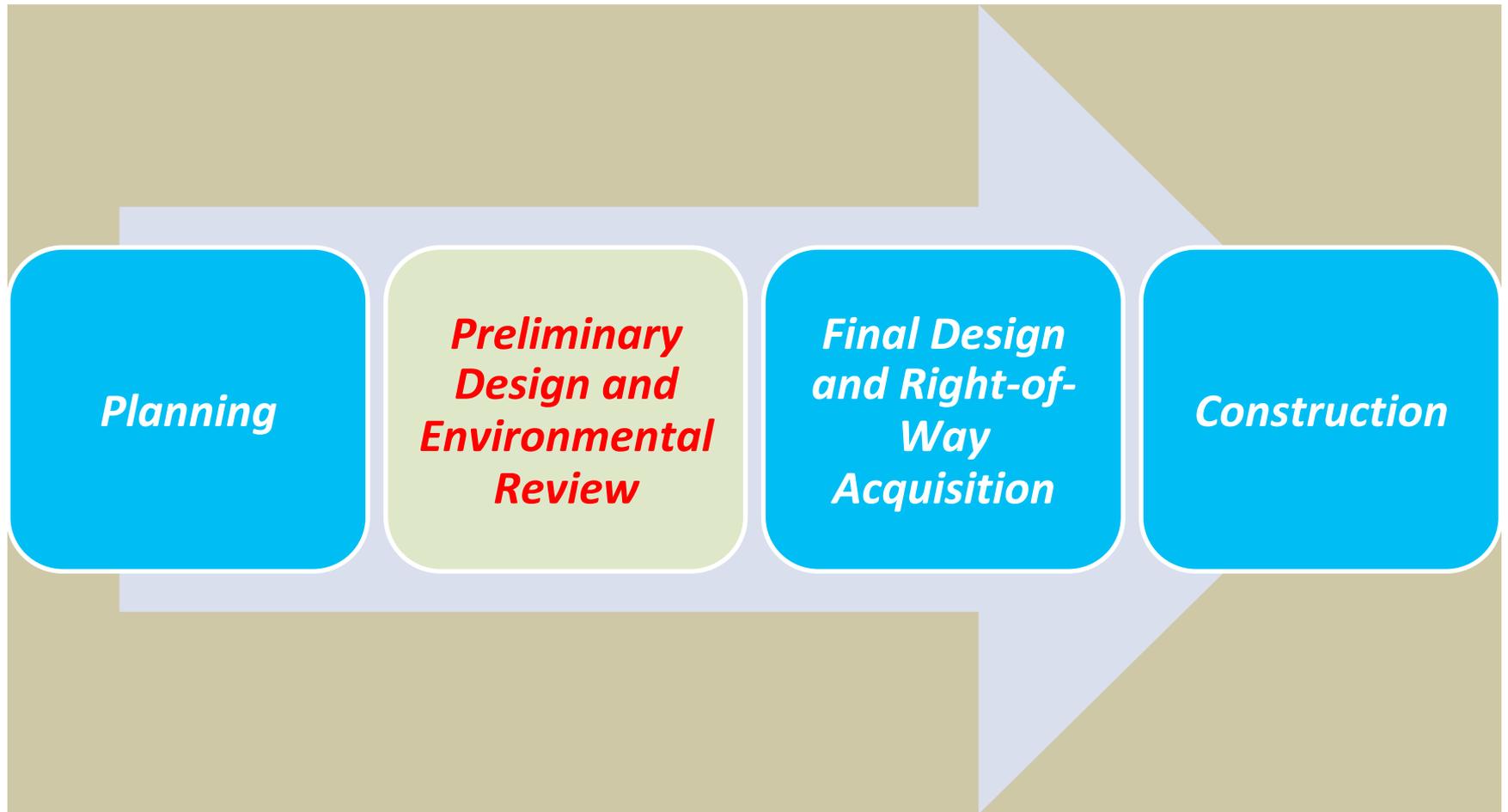
**U.S. Department of Transportation**  
Office of Inspector General

# Audit Case Study - Federal Investment in Preliminary Engineering in Highway and Bridges

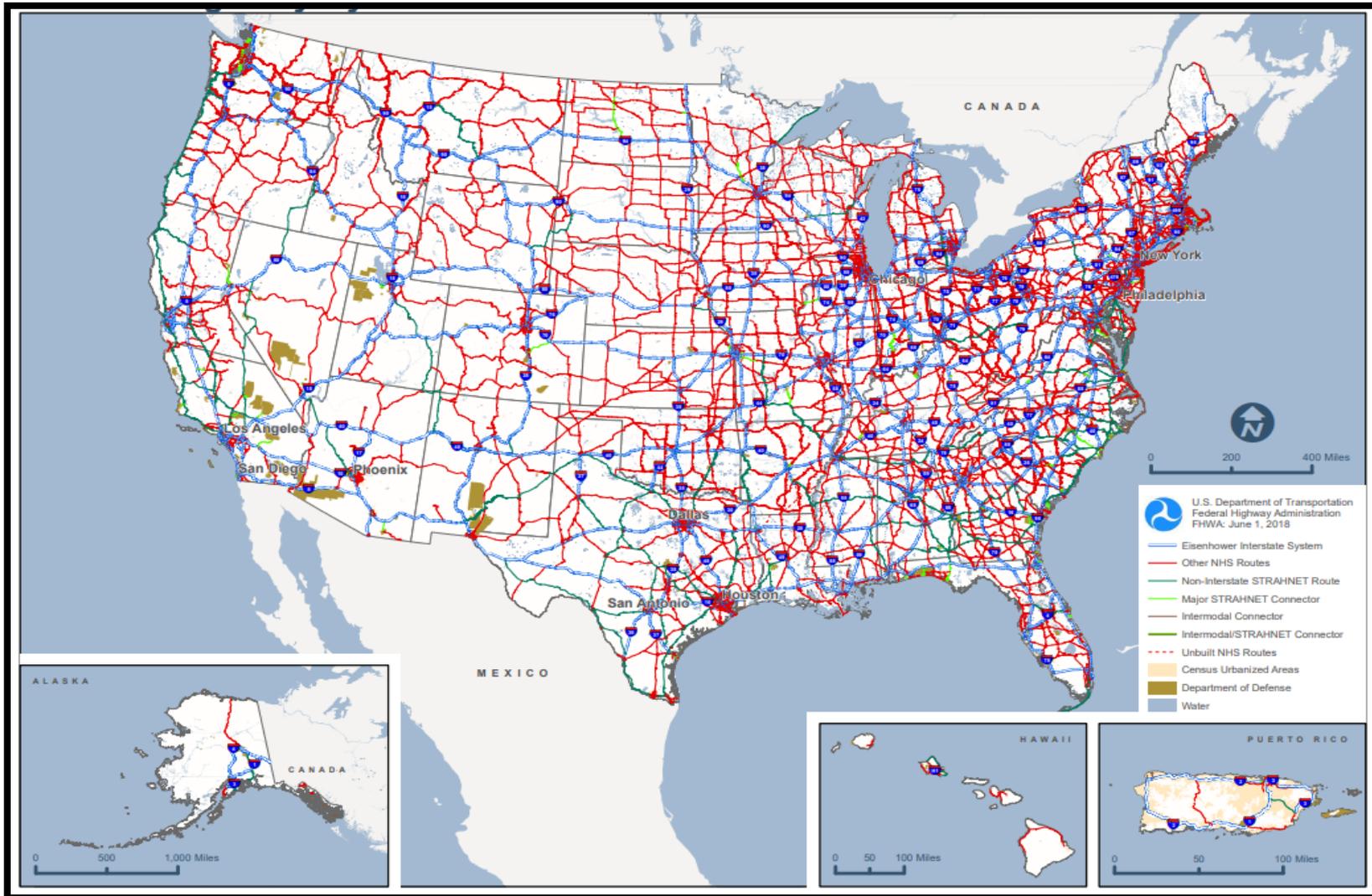
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Transportation Audits, DOT OIG**

September 4, 2018

# Preliminary Engineering (PE) in a Highway or Bridge Project



# National Highway System



Source: FHWA – as of June 1, 2018

# Background: U.S. Highways

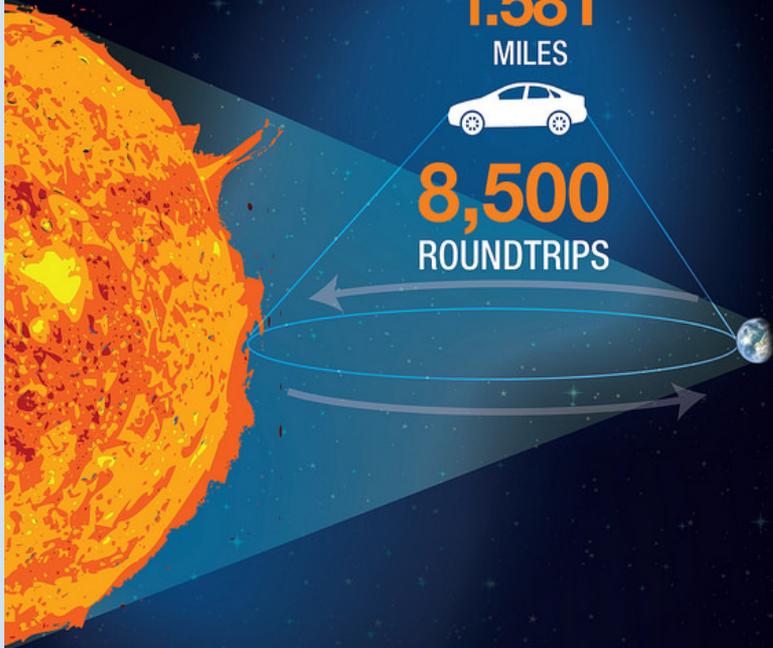
## U.S. DRIVING CLIMBS FOR SIXTH YEAR IN A ROW

U.S. driving topped 1.58 trillion miles for first 6 months of 2017, equaling 8,500 roundtrips from the Earth to the Sun.

**1.58T**  
MILES



**8,500**  
ROUNDTRIPS



Source: [https://www.fhwa.dot.gov/policyinformation/travel\\_monitoring/17juntvt/](https://www.fhwa.dot.gov/policyinformation/travel_monitoring/17juntvt/)

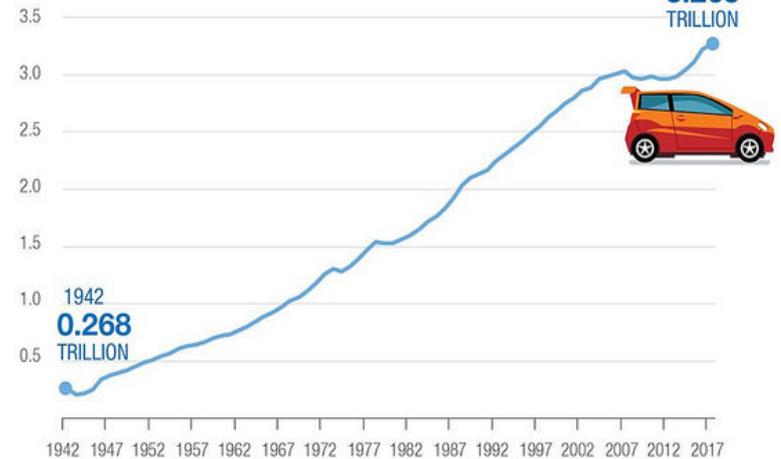


Traffic trend analysis has been done since the late 1930s. The term Traffic Volume Trends was first used in 1942.

Traffic counter circa 1942  
Photo credit: Ohio DOT

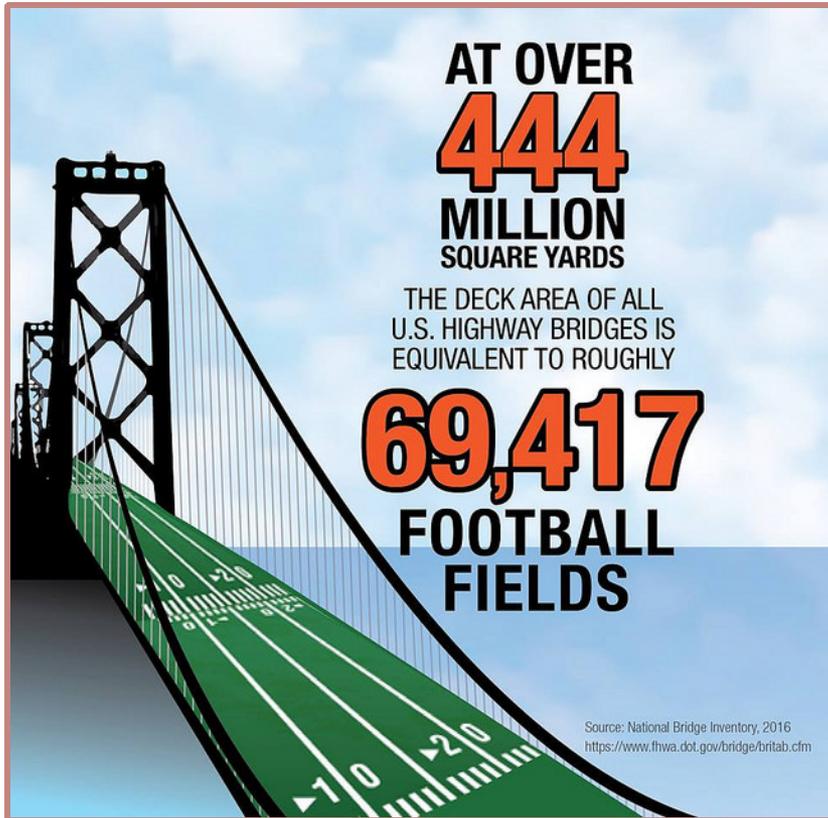


Vehicle-Miles Traveled 1942-2017



Source: [https://www.fhwa.dot.gov/policyinformation/travel\\_monitoring/tvt.cfm](https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm)

# Background: U.S. Bridges



## FHWA CELEBRATES 50 YEARS OF BRIDGE SAFETY

The collapse of the 2,235-foot long Silver Bridge, at Point Pleasant, West Virginia, on December 15, 1967, led Congress to establish safety standards and inspection requirements for our nation's bridges. Thanks to these requirements, every bridge is now inspected according to a specified interval, and any bridge determined to be unsafe is closed.

Percent of  
Highway Bridges  
in Poor Condition



1969

Percent of  
Highway Bridges  
in Poor Condition

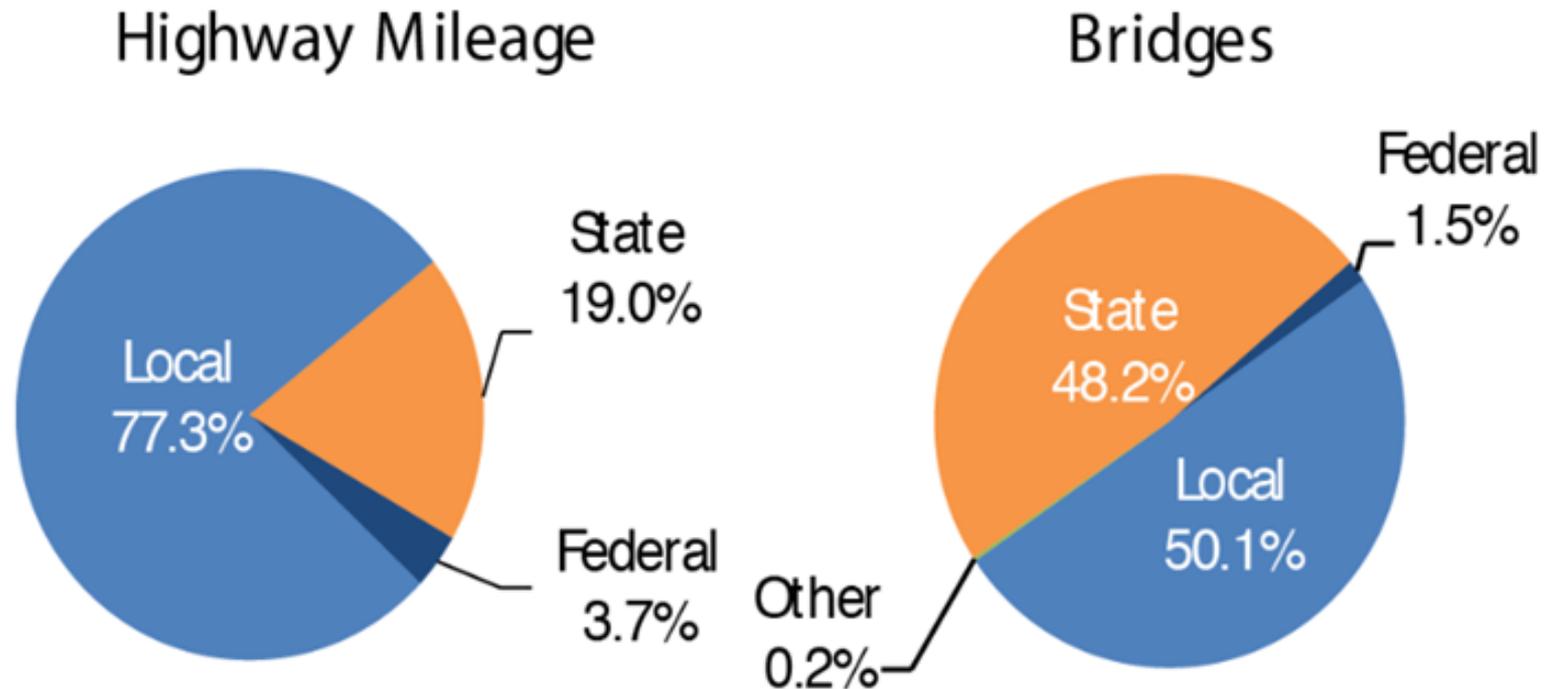


2017

Source: <https://www.fhwa.dot.gov/policy/2004cpr/chap15a.cfm>

Photo credit: Family of Cpl. Carl Boggs, 1928.

# Ownership of the Nation's Highways and Bridges

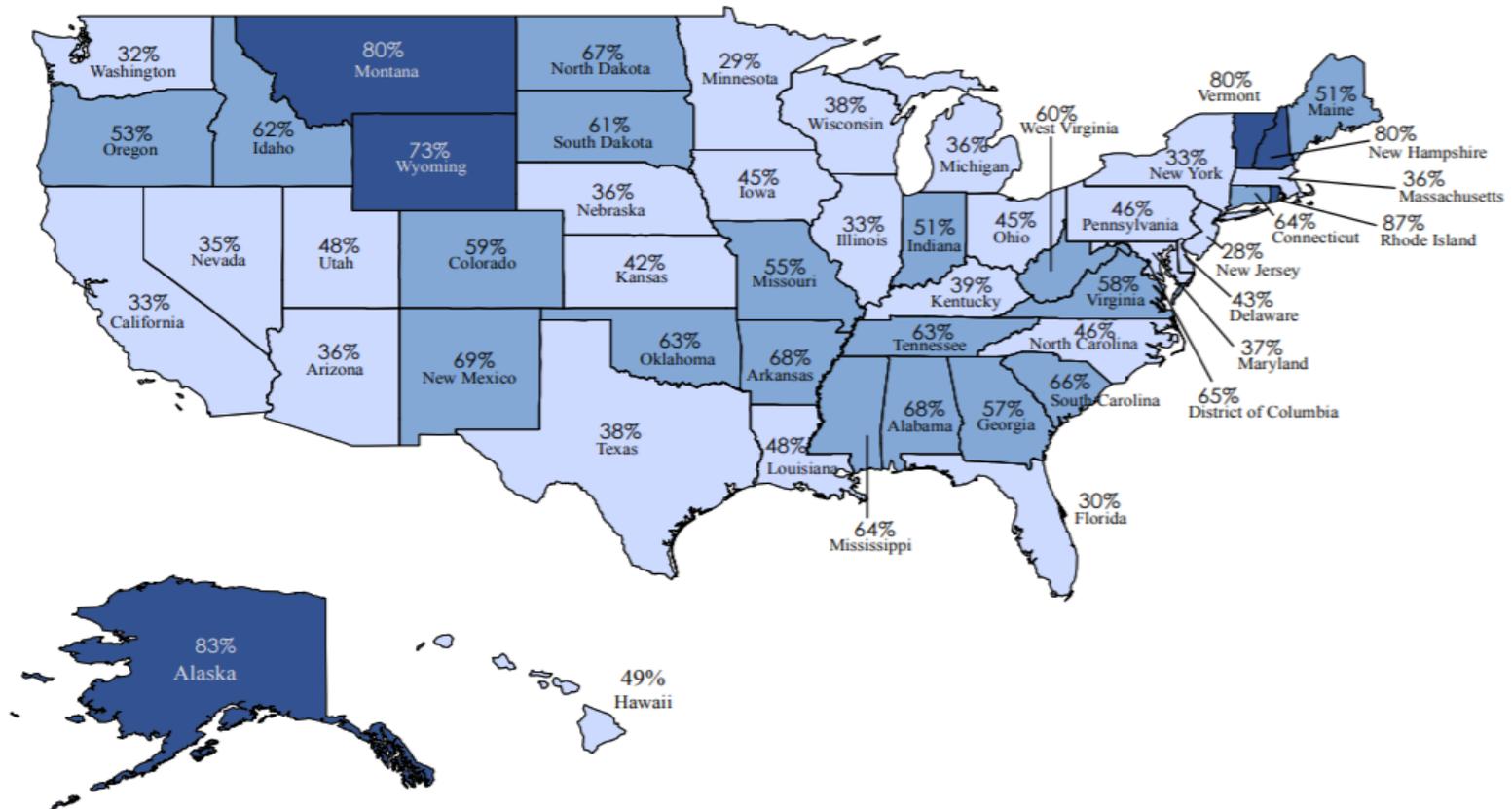


Source: FHWA 2015 Report on the Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance

# Federal Share of State Highway/Bridge Capital Expenditures is \$40B Annually

National Average: 43%

<50% 50%-70% 70%+



Source: FHWA Highway Statistics, 10-year average 2003-2012, Table HF-2 and unpublished Table FA-21. The percent is the ratio of reimbursements to states for capital outlays to total expenditures for capital outlays.

# Why Is This Audit a Case Study?

## Funds Put to Better Use

- Great example of Funds Put to Better Use in support of findings.

## Nuts and Bolts Performance Audits

- Shows the importance of reviewing basic agency requirements for longstanding programs—important for audit portfolios.

## Leveraging Audit Resources

- Demonstrates how leveraging of resources (legal, statisticians, engineering, financial experts) can impact an audit and help overcome audit challenges.

# Preliminary Engineering Criteria

- **Allowable Costs** — States can use Federal-aid to assist in the design and related ground work before a highway or bridge project advances to physical construction or acquires right-of-way.
- **Repayments** — Federal law requires the State to repay the full amount expended when a project does not acquire right-of-way or start construction within 10 years after Federal funds expended on PE were first made available.
- **Extensions** — Under certain conditions, a State may be allowed to extend the 10-year limit, such as when a delay is reasonable and beyond the State's control.
- **Waivers** — Not allowed under Federal law. However, FHWA had a longstanding “no build” practice under which PE repayment was not required if the project was terminated due to another law.

# FHWA Responsibilities

- **Accounting:** Ensure States' accounting systems can accurately identify PE costs by project.
- **Procedures:** Ensure States have procedures for regularly identifying PE projects nearing or exceeding the 10-year limit.
- **Take 1 of 3 Actions:** For projects not progressing:
  - Review/approve State's request for an extension.
  - Require repayment.
  - Determine repayment not required.

# Audit Findings

**1**

**Division Offices Do Not Effectively Assess Whether States' Systems and Processes Accurately Account for PE Projects**

**2**

**FHWA Lacks Effective Controls and Practices To Promote Transparent and Accurate Accounting for PE Projects**

**- \$1.1 Billion in Funds Put to Better Use**

**3**

**FHWA Processes Do not Ensure States Take Action to Repay PE Funds When Required**

**- \$3.3 Billion in Funds Put to Better Use**

**- \$143 Million Questioned Costs**

# Accounting for PE Projects

# Sample of 4 of 51 State Division Offices

## What We Found:

- ✓ None provided evidence of effective assessments of States' systems for accurate PE project data.
- ✓ Three took limited actions to review States' procedures.
- ✓ One fully relied on the State to account for its local public agencies use of significant part of Federal-aid in the State.

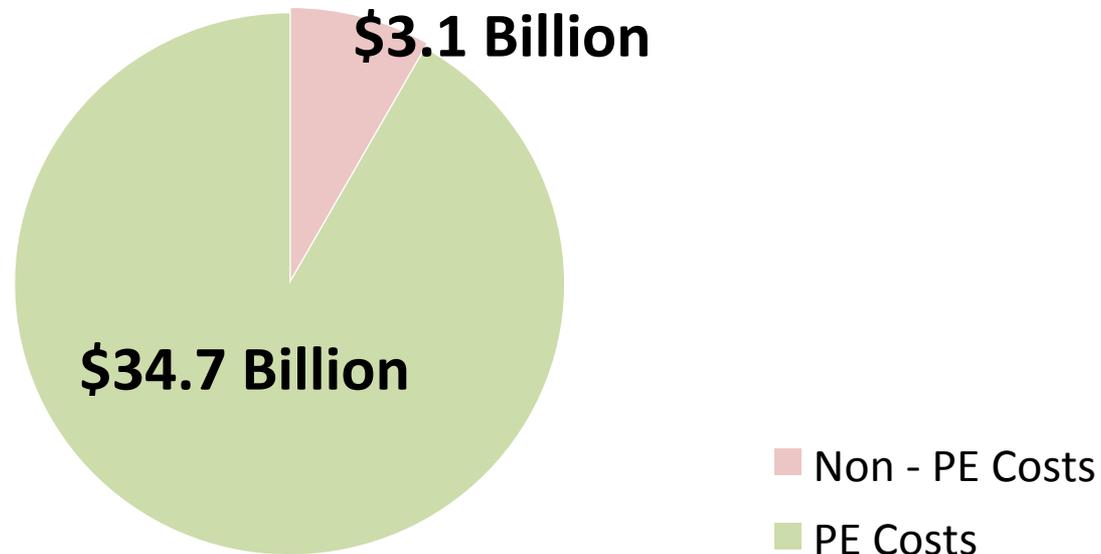
## Causes:

- ❑ Agency does not monitor Division Offices' PE oversight efforts.
- ❑ Policy lacks clarity on the specific actions to enforce State compliance with PE requirements.
- ❑ State oversight reviews do not require assessments of State compliance with PE requirements.
- ❑ Staff interviewed did not consider compliance with PE requirements to be high risk.

# Agency Controls

# Agency's PE Project Accounting

- States miscoded PE projects in the Agency's Fiscal Management Information System and on project agreements, which are used to monitor and authorize Federal funds.



Source: OIG Analysis and statistical projection of FHWA Project Data for fiscal years 2000 through 2004.

# Statewide PE Systems Approach

- The Statewide PE Systems approach authorized \$1.1 billion in PE Federal-aid.
- We reported that the approach:
  - ✓ Is not allowable phased funding under the Federal-aid highway program
  - ✓ Combines multiple projects into one project authorization
  - ✓ Delegates FHWA authority to approve Federal funding

# Processes to Ensure PE Repayments

# No Actions Taken by FHWA Nationally

We projected that ***\$3.3 billion*** (or approximately 9 percent of Federal funds spent on PE nationwide) were at risk of not being repaid to the Highway Trust Fund or efficiently made available for other projects to use at the 10-year limit due to FHWA's inaction during a 5-year period ending in fiscal year 2014.

# FBU Lessons Learned

- ❑ **FBU Mindset.** You don't have to initially plan for FBU. With high error rates present in a performance audit, it's never too late to add.
- ❑ **Criteria.** Attribute is straight forward and anchored to a specific action in policy, guidance, or law; or funds are expended in a specific way or Agency has a specific job to do.
- ❑ **Solid Universe.** Actual costs the easiest. Projections you need a solid universe derived from systems the Agency uses or recognizes.
- ❑ **Sampling Flexibility.** Need to build in sampling flexibility. Work with statistician to employ a sampling method that allows for flexibility (such as sampling with replacement) to accommodate unknown variables.
- ❑ **Keep it Simple.** Yes and No criteria only. If encountering "maybe" need to rethink the approach. Keep to basic key documentation support, do not design a plan that would require reams of paper that are open to interpretation.

# Actions Taken by the Four Reviewed Divisions

## *Extensions for PE Projects Exceeding 10-Year Limit*

### **TIMELINESS** *(Total projects reviewed: 142)*

<b>Timeliness Issue</b>	<b>Number</b>	<b>Percent</b>
Division Offices approved untimely extensions to the 10-year limit	75	53%
Division Offices did not follow up with States when extensions expired	19	13%

### **JUSTIFICATION** *(Total of projects reviewed: 116 of the 142 projects)*

<b>Justification Issue</b>	<b>Number</b>	<b>Percent</b>
Division Offices approved extensions lacking documented justifications	61	53%
Division Offices approved multiple extensions	16	14%
Division Offices approved extensions without sufficient justifications	7	6%
Division Offices automatically approved 3-year extensions to LPA projects	39	34%

Source: OIG analysis of Division Office records

# Repayments

## *States Allowed To Avoid PE Repayment Without Adequate Justification.*

- 23 of 28 projects (82 percent); States avoided repaying a total of \$45 million in PE costs without adequate justification

## *Division Offices Did Not Ensure States Timely Repaid Federally Funded PE Expenditures*

- 46 percent of 548 projects reviewed did not repay timely; repayment ranged between 1 and 23 years

# Internal Control Issues

*Broad guidance* allows for inconsistent interpretations across the Division Offices of when PE repayments should be pursued.

*No Financial internal control* after PE expenditures are owed after 10-year limit.

*The Chief Financial Officer does not provide ongoing oversight* of FHWA's required PE reimbursement actions.

# Recommendations

# Recommendations

1. Conduct an assessment of the risks and existing controls associated with the Division Offices' oversight of States' processes to track PE projects, and identify improvements to Division Office oversight.
2. Conduct an assessment of the accuracy and completeness of PE project authorizations. Correct any errors in FMIS projects that should be coded as PE as a result of this assessment.
3. Obtain a legal determination from the Office of the Secretary to permit SPES projects and similar funding agreements and establish internal controls to ensure compliance with Federal requirements. Implementing this recommendation could put the \$1.1 billion in PE funds to better use.

# Recommendations (Continued)

4. Update FHWA Order 5020.1 or develop Agency guidance to state FHWA's policy concerning compliance with Title 23 U.S.C. Section 102(b), including the following:
  - Define when a project progresses to right-of-way or construction.
  - Describe accurate coding parameters for PE projects in FMIS.
  - Define the means of tracking the 10-year limit for PE projects, including those involving multiple Federal project numbers.
  - Define recordkeeping and documentation expectations for tracking reimbursements, extending the 10-year limit, and decisions not to pursue reimbursements.
  - Define roles and responsibilities for Division Offices and FHWA Headquarters for consistent oversight and enforcement of PE requirements before and after the 10-year limit.
  - Define FHWA Headquarters' policy on resolving differences arising between Division Offices and States regarding required PE actions.

# Recommendations (Continued)

5. Develop and implement financial controls and processes to monitor PE projects exceeding the 10-year limit, approved extensions, and reimbursements not pursued when PE projects do not progress within the 10-year limit. Implementing this recommendation could put \$3.3 billion in PE funds to better use.
6. Develop performance measures that track compliance with the 10-year limit and report progress.

# Questions?

The Audit Report can be found at:

<https://www.oig.dot.gov>

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*Office of Inspector General*  
***Audit Report***

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**FHWA DOES NOT EFFECTIVELY ENSURE  
STATES ACCOUNT FOR PRELIMINARY  
ENGINEERING COSTS AND REIMBURSE  
FUNDS AS REQUIRED**

*Federal Highway Administration*

*Report Number: ST-2016-095*

*Date Issued: August 25, 2016*

